

The prevalence of hepatitis B virus among HIV-positive patients at tertiary care hospital Ajmer

¹Dr. Shakeel Ahamed, ²Dr. Geeta Parihar

¹Resident doctor, ²Senior Professor & Head

Department of Microbiology, J. L. N. Medical College & Associated Group of Hospitals, Ajmer (Raj) – 305001

Corresponding Author: Dr. Geeta Parihar, Senior Professor & Head, Department of Microbiology, J. L. N. Medical College & Associated Group of Hospitals, Ajmer (Raj) – 305001

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Abstract

Background: Approximately 10% of the HIV-infected population worldwide suffers from chronic hepatitis B. This study aimed to estimate the prevalence of hepatitis B virus among HIV-positive patients at tertiary care hospital Ajmer.

Methods: This study is conducted in J. L. N. Medical College & Associated groups of Hospitals patients attending from ICTC (G). 500 samples are taken randomly from January 2018 to June 2018

Results- There are 17 samples positive for HBsAg out of 500 Samples, so prevalence for HBsAg is 3.4%. Seroprevalence is highest in age group of 36-45 year (41.17%) followed by 29.41% 16-25 age group.

Conclusion- The prevalence of HBsAg found (3.4%) is considered to be moderately endemic in PLWHIV in this setting.

Keywords: Hepatitis B virus (HBV), Human Immunodeficiency Virus (HIV), HBsAg.

Introduction

Hepatitis B virus (HBV) infection is a major cause of chronic liver disease worldwide, and approximately 350 million people are chronically infected. In the absence of antiviral therapy, 15% to 40% of patients positive for the

hepatitis B surface antigen (HBsAg) develop progressive liver disease, cirrhosis, hepatocellular carcinoma, and terminal liver failure . Because HBV is primarily transmitted via the parenteral and sexual routes and during the perinatal period similar to human immunodeficiency virus (HIV), coinfection with HIV and HBV is common.¹

In the Middle East and Indian subcontinent an estimated 2–5% of the general population is chronically infected with HBV. [Approximately 10% of the HIV-infected population worldwide suffers from chronic hepatitis B] Co-infection rates of HBV in HIV patients vary worldwide and largely depend upon the geographical location, risk groups, the type of exposure involved and the socioeconomic condition of that particular region.²

HIV infection appears to have a negative impact on the natural history of HBV infection. In immunocompromised patients, the chronicity rates of HBV infection are higher, but the rates of hepatitis Be antigen (HBeAg) and HBsAg loss and seroconversion to anti-HBe and anti-HBs are lower than those in immunocompetent subjects.³

This study aimed to estimate the prevalence of hepatitis B virus among HIV-positive patients at tertiary care hospital Ajmer.

Material and methods

This study is conducted in J. L. N. Medical College & Associated groups of Hospitals patients attending from ICTC (G). 500 samples are taken randomly from January 2018 to June 2018

Sample Collection: 5ml blood was collected in a plain vial from the HIV positive patients using aseptic precautions. Blood was allowed to clot at room temperature for 30 minutes. After clotting the tubes centrifuged at 3000 rpm for 10 minutes. The clear serum was withdrawn and transfer to a sterile plastic vial for storage. Sample is stored in freezer (0°C).

A total of 500 samples from HIV infected individuals are screened for Hepatitis B Virus infection, are the following:

1. Detection of HBsAg by rapid card test.
2. Detection of liver enzyme by Automated autoanalyser

Data analysis

To collect required information from eligible patients a pre-structured pre-tested Proforma was used. For data analysis Microsoft excel and statistical software SPSS-20 was used and data was analyzed with the help of frequencies, figures, proportions, measures of central tendency, appropriate statistical test .

Results

Table 1: Prevalence of HBsAg among the various groups of HIV patients

Age group	Number	Percentage (%)
16-25	5	29.41.00%
26-35	2	11.76.00%
36-45	7	41.17.00%
46-55	3	17.64.0%

>55	0	0.0%
Total	17	100.00

There are 17 samples positive for HBsAg out of 500 Samples, so prevalence for HBsAg is 3.4%. Seroprevalence is highest in age group of 36-45 year (41.17%) followed by 29.41% 16-25 age group.

Table-2: Prevalence of HBsAg among different sex group

Gender	Number	Percentage (%)
Male	15	88.23%
Female	2	11.76%

Prevalence of HBsAg among Male patients is highest (88.23%) followed by Female (11.76%).

Discussion

This study is undertaken among HIV positive patients attending ICTC & ART Centre, JLN Medical College and Hospital, Ajmer. Serum samples from 500 cases collected from January 2018 to June 2018.

WHO report states that viral dose of HIV transmission through blood is so large that one HIV positive transfusion leads to death, on an average, after two years in children and after three to five years in adults. Again the infection is not detected in window period when antibodies are not formed in the blood, where screening is done for antibodies, for HIV infection.

HIV epidemic has remarkably impaired the economy of our country and health of the people. The major routes of transmission for HIV have been heterosexual contacts (42%), especially with commercial sex workers (CSWs), blood transfusion (15%) [2]. and intravenous drug use (15%). HIV patients may be co- infected with other infectious organisms which are transmitted through

common modes of transmission. In majority of the cases (> 90%), mode of transmission is unsafe sexual contact. Thus patient may be co-infected with HBV, through common modes of transmission and the prevalence of HBV, co-infection in HIV patients in India is not well known. The knowledge of the magnitude of such co infection is of great importance in making therapeutic decision while managing the patient.⁴

Presence of such co-infection may affect natural course of HIV whereas it may also influence the clinical presentation and course of other infections. The choice of antiretroviral treatment in patients with HIV disease is also influenced by the Presence of co-infections.⁵

S. No.	Study	HBV
1	Zaho et al ⁶	12.6%
2	Preeti gupta et al ⁷	6.25%
3	Sanjiv aahuja et al ⁸	4.9%
4	Dolly et al ⁹	3.75%
5	Neeta khokha et al ¹⁰	3.03%
6	S. Oner et al ¹¹	2.2%
7	Okonko et al ¹²	1.1%
8	Present study	3.4%

Our study shows HBsAg prevalence rate is 3.4% among the HIV infected individuals through the heterosexuals route, which is higher than the other study like Okonko et al (1.1%), S. oner et al (2.2%), Neeta khokhar et al (3.03%) and lower than the other study like Zaho et al (12.6%), Preeti gupta et al (6.25%) Sanjiv ahuja et al (4.9%) and Dolly et al (3.75%),

Our observation showed that individuals in the economically productive age group are being increasingly affected by HBsAg, leading to a loss to the economy. Main age group affected in our study is from 36-45 years. Out of 17 HBsAg positive patients, 15(88%) cases are seen in male gender. This could be because they are more exposed to the outdoor activities and are more prone to the adverse effects of other ways of life style.

Conclusion

The prevalence of HBsAg found (3.4%) is considered to be moderately endemic in PLWHIV in this setting. The presence of HIV-HBV co-infection requires antiretroviral therapy that also targets hepatitis B virus infection; hence, routine screening of PLWHIV for HBsAg should be considered so that proper treatment can be offered to co-infected individuals in order to improve quality of life and reduce morbidity.

References

1. World Health Organization . Hepatitis B: fact sheet no 204. Updated July 2016. Accessed March 25th 2019.
2. United Nations Programme on HIV/AIDS . Global AIDS update. 2016. Updated July 2016. Accessed March 25th 2019.
3. Barth RE, Huijgen Q, Taljaard J, Hoepelman AI. Hepatitis B/C and HIV in sub-Saharan Africa: an association between highly prevalent infectious diseases, a systematic review and meta-analysis. Int J Infect Dis. 2010;14(12):e1024–31.
4. Medicine Update; HIV Liver Disease, K. Kothari, P. Rijhwani, R. Choudhary, Chap. 2005; 145.
5. Buchacz K, Patel P, Taylor M, et al. Hepatitis B increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections. AIDS 2004; 18: 2075–9.

6. Zaho YS, Su SL, Lv CX, Zhang XF, Lin I, Sun XG, Lin B and Fu JH 2012 Shandong Academy of Medicine of Sciences, Jinan; Shandong Provincial Centre and Prevention (CDC), Inter J of STD & AIDS 2012;23:639-643.
7. Gupta preeti prevalence of Hepatitis B, C and in Nagaland 2009.
8. Ahuja Sanjiv, Malhotra Shalini, Chauhan Ankit, Hans Charoo. JIMSA. April-June 2013 Vol. 26 No. 2.
9. Dolly R, Anneis, Thaiyanayakip, Baby George P, Hohn Jacob. Increasing prevalence of HIV Antibody among Blood Donor Monitored over 9 Years in Blood Bank. Indian Journal Research 1998; 42.4.
10. Khokhar Neeta, Jelwa Dipal, Lunagaria Rahul, Panchal Nikul, Badrakiya Sonal & Badrakiya Gunjan Int. J. Curr. Microbiol. App. Sci (2015) 4 (9):188-1946.
11. ONER seva, YAPICI Gulcin, SASMAZ Caferi tayyar, KURT Ahmet Oner, BUGDAYCI Resul. Turk J. Med. Sci 2011; 41(2):335-341
12. Okonko Sch. Hepatitis B increases HIV viral load and decreases CD4 cell counts in HIV-infected patients with new syphilis infections. J. App. Med. Sci., 2014; 3(8).